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REPORT OF WATERMELON SHIPPING TESTS FROM SOUTH CAROLINA TO NORTHERN MARKETS, JULY, 1946.

Comparison of Loads With and Without Excelsior Pads Between Ends of Melons.

By

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REPORT OF WATERMELON SHIPPING TESTS FROM SOUTH CAROLINA TO NORTHERN MARKETS, JULY, 1946

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Breakage of watermelons during the transportation period occurs in practically every carload. At times the breakage is negligible; at other times it occurs in serious proportions resulting in heavy financial losses and a waste of foodstuff. There are usually several times as many bruised as broken melons in a car on arrival at market. The life expectancy of bruised melons is so short that they must be consumed promptly if at all, and at best they are disposed only at a financial loss. A melon broken in transit cannot be salvaged or converted into by-products; hence it is a total loss.

In seeking means to reduce these losses railroads serving the southeastern melon growing territory requested the U. S. Department of Agriculture to join in a series of watermelon shipping tests to determine the merits of using excelsior pads as a means of preventing bruising and breakage of melons when such padding material is placed between ends of melons throughout the load.

It was originally planned that the shipping tests would be made from the Florida-South Georgia region because of the long haul. However, there were unavoidable delays in securing the padding material and the shipping season in South Georgia was drawing to a close before the pads were received. Because of this delay the tests were made from the district around Fairfax in southeastern South Carolina in early July where the season was opening at that time.

The pads used in the tests were of excelsior covered with thin kraft paper. They were about one inch thick, eight inches wide, and about 12 feet long. The length was sufficient to extend across the car with enough material remaining to fold along the car and protect the side of the melon next to the car wall. Thus the ends of each melon were separated from the next by this cushionlike pad and the side of every melon next to the car walls was likewise protected.

The cars used in these tests, mostly ventilated box cars, were prepared in the usual way for loading, i.e., from 3 to 5 bales of straw were used to cover the floor and cushion the ends of the car. In most cases the sidewalls and ends of the car were covered with fairly heavy kraft paper. The number of melons per car varied with the size of the melons and the number of layers. In general the long type melons except Garrisons were loaded four layers high and the round melons and Garrisons only three layers high.

The loading was carried out with as much care as could reasonably be expected in commercial practice. However, the bodies of some of the wagons and trucks hauling melons from the field to the loading station were neither padded nor lined with burlap. This resulted in scratches and bruises on the melons before loading. All cars moved out on the evening of the day of loading. The varieties of melons used in these tests were as follows: Cuban Queen, Cannonball, Garrison, Blacklee, and Watson. For the purpose of these tests it probably would have been better if a tender variety (such as the Garrison) could have been loaded in all cars.

Eleven cars were tested with padded melons. For each padded load there was a companion or check car of similar melons without pads, loaded on the same day at the same station. The padded car and its check were always billed to the same destination. In two instances, however, as shown in table 1, the paired cars were separated by one of them being diverted.

In addition to these eleven paired tests eight cars were shipped with padded melons in one end of the car and non-padded melons in the other.

Results

Inspection of the test loads upon arrival was made either by the Railroad Perishable Inspection Agency, the Farm Products Inspection Service of the U. S. Department of Agriculture or by a staff associate. Terminal inspectors who reported on the cars in which only half of the load was padded sometimes failed to make a separate accounting for the melons in the two ends of the cars, hence the results obtained from these half-car tests cannot be interpreted properly.

In the two-car comparisons, terminal inspection on one car was not obtained, thus reducing the number of paired tests to 11. The results from these are presented in table 2 and show that there was no consistent advantage from use of pads, based on records of bruising, cracking, and decay.

Bruised melons. In the naked loads the number of bruised melons ranged from 2 to 40 with an average of 14.2 per car. In the padded load the number of bruised melons ranged from 2 to 50 with an average of 20.6 per car.

Cracked melons. In the naked loads the number of cracked melons ranged from 0 to 47 with an average of 13.3 per car. In the padded loads breakage ranged from 0 to 25, with an average of 9.0 cracked melons per car.

Decayed melons. In the naked loads, the number of decayed melons ranged from 8 to 108 averaging 27.8 per car; in the padded loads decay ranged from 3 to 92 melons, averaging 25.5 melons per car.

Since the differences indicated above were not consistent and on the average not great, the results of these shipping tests hardly support a contention on the one hand that excelsior separating pads between the ends of melons reduce breakage and on the other that they increase decay during the normal rail-transit period.

Acknowledgment

These tests were made possible through the cooperation of the following organizations and individuals: Messrs. J. A. Shea, Robert A. Derr, M. A. Burnham, and C. E. Lloyd of the Seaboard Air Line Railroad; A. L. Batts, J. R. Averitt, and W. L. Berry of the Atlantic Coast Line Railroad, who participated in the loadings; the Atlantic Commission Co., I. Meltzer & Son, Sam M. Jones, American Fruit Growers, Inc., and others who controlled the cars and their routing; the Fresh Products Inspection Service of the U. S. Department of Agriculture; the Railway Perishable Inspection Agency, and L. P. McColloch, associate pathologist of this Division who inspected the loads at various destinations.

The growers who participated in these tests also gave generous cooperation and our thanks are extended to them as well as to those named above for the help received.

Table 1. Car number and destination, watermelon shipping tests with naked and padded loads from Fairfax district, South Carolina, July, 1946.

Test No.	Date July	Car and destination			
		Naked		Padded	
1	3	WFE 62409	Philadelphia, Pa.	PFE 18340	Allentown, Pa.
2	4	SAL 79702	Baltimore, Md.	SAL 79781	Baltimore, Md.
3	5	ACL 17335	Harlem River, N. Y.	C&WC 1236	Harlem River, N. Y.
4	5	SAL 28915	Boston, Mass.	SAL 79037	Providence, R. I.
5	5	ACL 17223	Philadelphia, Pa.	ACL 17447	Philadelphia, Pa.
6	6	SAL 79168	Philadelphia, Pa.	SAL 89428	Philadelphia, Pa.
7	6	FGE 25802	Philadelphia, Pa.	FGE 45149	Philadelphia, Pa.
8	9	C&WC 1283	Manhattan Prod. Yds., N. J.	ACL 18835	Manhattan Prod. Yds., N. J.
9	9	SAL 89153	Philadelphia, Pa.	FGE 79757	Philadelphia, Pa.
10	9	SAL 28470	Kearney, N. J.	SAL 29105	Kearney, N. J.

Table 2. Comparison of breakage and decay in naked and padded loads. Watermelon shipping tests, Fairfax district, South Carolina, July, 1946.

Test No.	Variety	Bruised melons		Cracked melons		Decayed melons	
		Naked	Padded	Naked	Padded	Naked	Padded
1	Queen	11	7	47	25	16	3
2	Watson	36	23	14	14	108	27
3	Blacklee	40	50	0	0	8	10
4	Queen	0	32	44	18	10	92
5	Cannonball	2	2	0	0	45	52
6	Garrison	5	3	9	5	23	10
7	Watson	3	2	0	3	10	17
8	Watson	10	15	0	2	12	9
9	Garrison	11	35	12	18	30	17
10	Watson	24	37	7	5	16	18
Average per car		14.2	20.6	13.3	9.0	27.8	25.5